

In the Specification

Amend the specification as follows:

Amend paragraph 0031 as follows:

[0031] The second heat exchanger portions may be operatively connected such that the second fluid may flow therebetween through a conduit extending from and along the manifold of the one of the second heat exchanger portions to and along the manifold of the other of the second heat exchanger portions. The conduit may ~~contain~~ contain at least one stiffening member.

Amend paragraph 0060 as follows:

[0060] Cores 26a, 26b for radiator units 21, 22 are shown in Fig. 5 as down flow units having cooling fins 29 extending between spaced, vertically extending tubes 33 to permit cooling air flow through the unit. Such fins should extend between all of the tubes in the core. These tubes 23 may be two (2) rows deep, as shown in Fig. 2, or any other configuration. Like the CAC units, the radiator units 21, 22 are depicted as down flow units, with the tubes extending in the direction of the shorter dimension of the unit, the height, so that a large number of tubes are employed. Alternatively, when the pressure drop of the coolant in the radiator is not critical, the radiator units can be cross-flow units, where the tubes extend in the direction of the length of the longer, width dimension of the unit, with a fewer number of tubes being ~~employed~~ employed.

Amend paragraph 0062 as follows:

[0062] ~~Fig. 7 depicts~~ Fig. 7 depicts another embodiment 20' of the present invention which is structurally identical to the previous embodiment, with the difference being that the radiator and charge air cooling units are rotated 90°, so that the radiator and CAC units are horizontally separated. As before, manifolds 24a, 24b, 24c, 24d of radiator units 21 and 22 may be oriented in the same direction as manifolds 34a, 34b, 34c, 34d of CAC units 30 and 32. In this embodiment, all of the manifolds of the radiator and charge air cooler units are vertically oriented and horizontally spaced and, consequently, the fluid flow through the now horizontal tubes within the cores of the respective radiator and charge air cooler units is now horizontal. However, the performance of the heat exchanger package in the embodiment of ~~Figs. 7 is the~~ Fig. 7 is substantially the same as that in the embodiment of Figs. 2-6 since the charge air cooler tubes are as short and as numerous as possible given that the horizontal width ~~of the each~~ of each charge air cooler unit is less than its vertical height.

Amend paragraph 0063 as follows:

[0063] Fig. 8 depicts the heat exchanger package 20, 20' of the previous embodiments in relation to a cooling suction fan having fan blades 62 powered by a fan motor 60. The heat exchanger package ~~20, 20"~~ 20, 20' is in line with the area swept by the fan blades to move the outside ambient cooling air 46 through each of the CAC units 30, 32 and radiator units 21, 22. Preferably, radiator manifolds 24b, 24c and CAC manifolds 34b, 34c are positioned in line with the center of the fan blades 62 and fan motor 60, where airflow is low or nearly zero. A fan shroud (not shown) may be positioned

circumferentially around the fan blades and the heat exchanger package top and side edges to contain and direct the airflow. The heat exchanger package is configured so that one radiator unit, 21, is aligned with one CAC unit, 32, in the same plane normal to the direction of cooling air flow 46, so that the cooling air flows in parallel through these radiator and CAC units. The other radiator unit, 22, is aligned with the other CAC unit, 30, also in the same plane normal to the direction of cooling air flow 46, so that the cooling air flows in parallel through these radiator and CAC units. Radiator/CAC units 22, 32 are in an abutted or closely spaced relationship with and connected in series to the radiator/CAC units 21, 30 and are aligned so that ambient cooling air 46 passes through both radiator and CAC units 21 and 30, and radiator and CAC units 32 and 22, in a serial or sequential manner. The front and back faces of radiator/CAC units 21 and 32 and the front and back faces of radiator/CAC units 22 and 30 are also preferably in the same respective planes, as shown in Fig. 8.

Amend paragraph 0064 as follows:

[0064] In operation, ambient cooling air 46 presented to approximately half of the heat exchanger package ~~20 or 20"~~20 or 20' flows sequentially and in series through the free front face 28a of radiator unit 21, through core 26a, out through the rear face 28b and, now having been heated to above ambient temperature, then immediately flows through adjacent front face 35a of CAC unit 30. After passing through CAC core 37a, the cooling air passes out through rear face 35b. In the other approximately half of heat exchanger package ~~20 or 20"~~20 or 20', parallel ambient air 46 flows sequentially and in series through front face 35c of core 37b of CAC unit 32, and out of CAC rear face 35d and,

now having been heated to above ambient temperature, then immediately through adjacent face 28c of radiator unit 22. After passing through the radiator core 26b, the ambient cooling air then exits through free rear face 28d of radiator unit 22. Notwithstanding the fact that it is heated as it passes through the fins of the radiator and CAC units, unless otherwise specified, the term ambient air includes all of the cooling air as it passes through the heat exchanger package.

Amend paragraph 0065 as follows:

[0065] As shown in Fig. 6, the operational flow of fluid to be cooled is such that the initially hot engine coolant 40 is received in manifold 24a of radiator unit 22 and cooled as it passes 42 through radiator core 26a, given that ambient air 46 is at a lower temperature than the incoming engine coolant 40. The partially cooled engine coolant is ~~than transferred~~ then transferred 44 from manifold 24b to manifold 24c of radiator unit 32, where it passes 45 through radiator core 26b and manifold 24d, and out 48 to return to the engine at a cooler temperature. Incoming compressed charge air 50 is normally at a higher temperature than the incoming engine coolant, and is initially passed through upper charge air cooler unit 30. This heated charge air flows through core 37a and is then cooled by air 46, after that air passes through and is heated by radiator upper core 26a of radiator unit 21. The partially cooled compressed charge air 54 then passes from lower manifold 34b to upper manifold 34c of lower CAC unit 32. CAC unit 32 is in front of radiator lower unit 22 with respect to the cooling air flow, and as the charge air 56 passes downward through core 37b, it is cooled by the fresh ambient air before it passes

out through manifold 34d of CAC unit 32 as cooled compressed air 58, which is then routed to the air intake manifold of the engine.

Amend paragraph 0066 as follows:

[0066] The flow of ambient cooling air may be reversed for the embodiments described herein, so that it flows in ~~direction 46"~~direction 46' (Figs. 6 and 7). To accomplish this, a blower fan may be used in place of the suction fan to blow air first through the fan and then through the heat exchanger package. Additionally, the flow of fluids to be cooled may be reversed from that described above. The cooling performance of the heat exchanger package, including the CAC units, will be the same when reversing the flow of the ambient cooling air, so that it flows in direction 46', and reversing the flow of the charge air, so that the charge air enters through manifold 34d and exits through manifold 34a.

Amend paragraph 0073 as follows:

[0073] Referring to ~~Fig. 17~~to Fig. 17, a heavy duty highway truck 70 is shown including engine 72 located in engine compartment 76 at the front portion of the truck. The vehicle includes a lower frame 74 having the combined radiator/CAC heat exchanger ~~package 20, 20"~~package 20, 20', 220 mounted vertically at the front end of engine compartment 76. The fan is mounted within fan shroud 78 positioned behind the heat exchanger package. The radiator units are operatively connected to the cooling system of engine 72 by inlet hose 71a and outlet hose 71b which provide for flow of the engine coolant from and to the engine. The charge air cooler units are operatively connected

between the engine turbo or supercharger and the engine air intake manifold by inlet hose 73a and outlet hose 73b. Fig. 18 depicts the heat exchanger package of the invention ~~20, 20"~~20, 20', 220 mounted at the rear of a bus behind grill 82, or at the side near the rear (in phantom lines).